

# Recovery Plan Action Status

Plan Name: Vernal Pools of Southern California Recovery Plan

Plan Status: Final

Plan Date: 03-Sep-98

Lead Agency: USFWS

Lead Office: Carlsbad Fish And Wildlife Office

(760)

431-9440 )

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> ), San Diego mesa-mint ( <i>Pogogyne abramsii</i> ), Spreading navarretia ( <i>Navarretia fossalis</i> ), California Orcutt grass ( <i>Orcuttia californica</i> ), Otay mesa-mint ( <i>Pogogyne nudiuscula</i> ), Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	1	111	Inventory each of the complexes to determine the extent and configuration of the individual vernal pools and their associated watersheds	Partially Complete	Prior to FY 1995		U.S. Department of Defense, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Research: Habitat Status	Contract	
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> ), San Diego mesa-mint ( <i>Pogogyne abramsii</i> ), Spreading navarretia ( <i>Navarretia fossalis</i> ), California Orcutt grass ( <i>Orcuttia californica</i> ), Otay mesa-mint ( <i>Pogogyne nudiuscula</i> ), Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	1	112	Inventory each pool within each complex to determine the species and abundance	Partially Complete	Prior to FY 1995		City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Research: Population Surveys	Contract	

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San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	1	114	Investigate biological factors affecting recovery	Ongoing Current	FY 2000 - FY 2004		City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Research: Competition, Research: Disease, Research: Genetics	Contract, Species Expert	In 2011, a study on fairy shrimp and mosquito vector control agents was completed. Also, another study is planned in 2012 to research potential interactions with Versatile fairy shrimp.
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> ), Spreading navarretia ( <i>Navarretia fossalis</i> ), California Orcutt grass ( <i>Orcuttia californica</i> ), Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	1	122	Secure the existing vernal pools and their associated watersheds currently occupied by <i>Orcuttia californica</i> , <i>Pogogyne nudiuscula</i> and the Riverside Fairy Shrimp	Ongoing Current	FY 2011	FY 2012	City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Acquisition: General	Internal Technical Assistance	Parcels were acquired using Section 6 funding on Otay Mesa (Clayton and several 1 ac parcels) and Whihelm in western Riverside County. In addition, the Lonestar property (J29-30) was acquired for mitigation by CalTrans and several private projects.

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Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	1	125	Secure the existing vernal pools and their associated watersheds within the Ramona complexes that contain <i>Dovingia cuspidata</i> , <i>Eryngium aristulatum</i> ssp. <i>parishii</i> , <i>Navarretia fossalis</i> , <i>Myosurus minimus</i> , and any other vernal pool species of limited dist	Partially Complete	FY 1995 - FY 1999		City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Acquisition: General	Internal Technical Assistance	
San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> ), San Diego mesa-mint ( <i>Pogogyne abramsii</i> ), Spreading navarretia ( <i>Navarretia fossalis</i> ), California Orcutt grass ( <i>Orcuttia californica</i> ), Otay mesa-mint ( <i>Pogogyne nudiuscula</i> ), Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	1	126	Secure the existing vernal pools and their associated watersheds located on Stockpen soils	Partially Complete	FY 1995 - FY 1999		City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Acquisition: General	Internal Technical Assistance	Parcels were acquired using Section 6 fundin on Otay Mesa - Clayton and several 1 ac parcels. In addition, the Lonestar property (J29-30) were acquired for mitigation by CalTrans and several private projects.

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San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> ), San Diego mesa-mint ( <i>Pogogyne abramsii</i> ), Spreading navarretia ( <i>Navarretia fossalis</i> ), California Orcutt grass ( <i>Orcuttia californica</i> ), Otay mesa-mint ( <i>Pogogyne nudiuscula</i> ), Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	2	3	Within each management Area, reestablish and enhance secured vernal pool habitats and their constituent species	Ongoing Current	FY 1995 - FY 1999		City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Management: Habitat Maintenance and Manipulation, Management: Reintroduction	Contract, Internal Technical Assistance, Species Expert	Restoration is being implemented by Caltrans on both Otay Mesa and Del Mar Mesa; San Diego NWR has restored habitat in the S series pools by Sweetwater.

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San Diego button-celery ( <i>Eryngium aristulatum</i> var. <i>parishii</i> ), San Diego mesa-mint ( <i>Pogogyne abramsii</i> ), Spreading navarretia ( <i>Navarretia fossalis</i> ), California Orcutt grass ( <i>Orcuttia californica</i> ), Otay mesa-mint ( <i>Pogogyne nudiuscula</i> ), Riverside fairy shrimp ( <i>Streptocephalus woottoni</i> ), San Diego fairy shrimp ( <i>Branchinecta sandiegonensis</i> )	2	5	Monitor protected habitat and listed species	Planned	FY 2012		City governments, County governments, U.S. Department of Defense, U.S. Federal Highway Administration, U.S. Geological Survey, Biological Resources Division, U.S. Fish and Wildlife Service, California Department of Fish and Game, U.S. Army Corps of Engineers	Management: Population Monitoring	Contract, Internal Technical Assistance, Species Expert	We are working with the City of San Diego and SANDAG to develop a monitoring plan for vernal pool species.